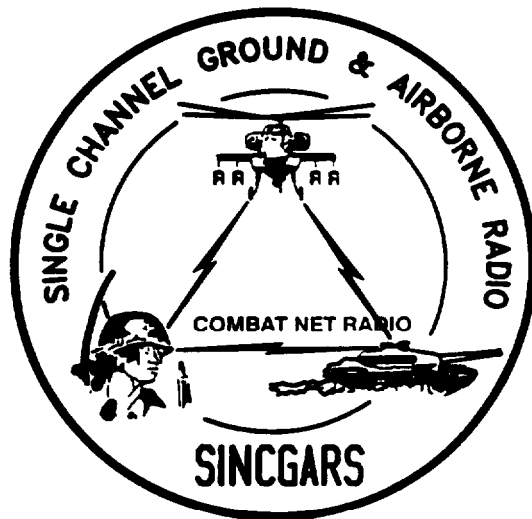


TECHNICAL MANUAL

UNIT MAINTENANCE MANUAL



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GROUND ICOM RADIO SETS

AN/PRC-119A (NSN 5820-01-267-9482) (EIC: L2Q),
 AN/PRC-119D (NSN 5820-01-421-0801) (EIC: N/A),
 AN/PRC-119F (NSN 5820-01-451-8252) (EIC: N/A),
 AN/WC-87A (NSN 5820-01-267-9480) (EIC: L22),
 AN/VRC-87D (NSN 5820-01-351-5259) (EIC: GAR),
 AN/VRC-87F (NSN 5820-01-451-8248) (EIC: N/A),
 AN/IIIR&88A (NSN 5820-01-267-9481) (EIC: L23),
 AN/VRC-88D (NSN 5820-01-352-1694) (EIC: GAS),
 AN/VRC-88F (NSN 5820-01-452-8435) (EIC: N/A),
 AN/VRC-89A (NSN 5820-01-267-9479) (EI: L24),
 AN/VRC-89D (NSN 5820-01-420-6619) (EIC: N/A),
 AN/VRC-89F (NSN 5820-01-451-8247) (EIC: N/A),
 AN/VRC-90A (NSN 5820-01-267-5105) (EIC: L25),
 AN/VRC-90D (NSN 5820-01-420-6618) (EIC: N/A),
 AN/VRC-90F (NSN 5820-01-451-8246) (EIC: N/A),
 AN/VRC-90A (NSN 5820-01-267-9478) (EIC: L26),
 AN/VRC-91 (NSN 5820-01-267-9477) (EIC: N/A),
 AN/VRC-91F (NSN 5820-01-421-2605) (EIC: N/A),
 AN/VRC-92A (NSN 5820-01-267-9477) (EIC: L27),
 AN/VRC-92D (NSN 5820-01-421-2605) (EIC: N/A),
 AND
 AN/VRC-92F (NSN 5820-01-451-8250) (EIC: N/A)

Approved for public release; distribution is unlimited.

**Technical Manual
Unit Maintenance Manual
Ground ICOM Radio Sets:**

AN/PRC-119A	(NSN 5820-01-287-9482)	(EIC: L2Q),
AN/PRC-119D	(NSN 5820-01-421-0801)	(EIC: N/A),
AN/PRC-119F	(NSN 5820-01-451-8252)	(EIC: N/A),
AN/VRC-87A	(NSN 5820-01-287-9480)	(EIC: L22),
AN/VRC-87D	(NSN 5820-01-351-5259)	(EIC:GAR),
AN/VRC-87F	(NSN 5820-01-451-8248)	(EIC:N/A),
AN/VRC-88A	(NSN 5820-01-267-9481)	(EIC: L23),
AN/VRC-88D	(NSN 5820-01-352-1694)	(EIC:GAS)
AN/VRC-88F	(NSN 5820-01-452-8435)	(EIC:N/A)
AN/VRC-89A	(NSN 5820-01-267-9479)	(EIC: L24),
AN/VRC-89D	(NSN 5820-01-420-6619)	(EIC: N/A),
AN/VRC-89F	(NSN 5820-01-451-8247)	(EIC: N/A),
AN/VRC-90A	(NSN 5820-01-267-5105)	(EIC: L25),
AN/VRC-90D	(NSN 5820-01-420-6618)	(EIC: N/A),
AN/VRC-90F	(NSN 5820-01-451-8246)	(EIC: N/A),
AN/VRC-91A	(NSN 5820-01-267-9478)	(EIC: L26),
AN/VRC-91D	(NSN 5820-01-420-6621)	(EIC: N/A),
AN/VRC-91F	(NSN 5820-01-451-8249)	(EIC: N/A),
AN/VRC-92A	(NSN 5820-01-287-9477)	(EIC: L27),
AN/VRC-92D	(NSN 5820-01-421-2605)	(EIC: N/A),
AND		
AN/VRC-92F	(NSN 5820-01-451-8250)	(EIC: N/A)

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes, or if you know a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: U.S. Army CECOM, ATTN: AMSEL-LC-LM-LT, Fort Monmouth, New Jersey 07703-5007. A reply will be furnished direct to you.

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POWER DISTRIBUTION DIAGRAMS (See TM 11-5820-890-20-2)

HOW TO USE THIS MANUAL

OBJECTIVE.

The goal of this technical manual is to provide unit maintenance procedures that are easy to understand and is equally easy to follow when operating in the field.

MANUALS.

Three technical manuals support the unit maintainer:

TM 11-5820-890-20-1 (Short title: TM 20-1) focuses on SINCGARS radios, both manpack and vehicular configurations, and provides essential information regarding cables, component replacement and repair. By limiting TM 20-1 to this primary focus, the manual is small enough to be carried around by the maintainer during field operations if required.

TM 11-5820-890-20-2 (Short title: TM 20-2) supplements TM 20-1 with maintenance procedures regarding other system components. These include vehicular intercommunications system (VIC), frequency-hopping multiplexer (FHMUX), control-monitor (C-M), remote control unit (RCU), single radio mount (SRM), FH fill devices, and batteries. Additionally, TM 20-2 includes the maintenance allocation chart and power distribution diagrams. TM 20-2 is necessarily larger than TM 20-1 and it is designed primarily for use under shelter.

TM 11-5820-890-20-3, Unit Maintenance Handbook (Short title: TM 20-3) is the third manual. This is a logbook size manual designed to be routinely carried by each unit maintainer while checking out communications systems installed in vehicles and in field locations. The information contained in this handbook is extracted from TM 20-1 and TM 20-2, but the manual's useful size obviously limits the amount of information provided. The guidance found in the handbook is accurate. It is just not as detailed as that found in TM 20-1 and TM 20-2.

Unit maintenance personnel are encouraged to use all three manuals. The handbook is carried on their person for on-site, in the field, troubleshooting and faulty line replaceable unit (LRU) identification. TM 20-1 and TM 20-2 are then used to confirm handbook-based findings, or to extend troubleshooting procedures where the handbook fails to disclose which LRU is faulty.

PRINCIPLES OF OPERATION.

Where appropriate, TM 20-1 and TM 20-2 provide background information of general interest in understanding how the system or component works.

OPERATIONAL CHECKS.

Each chapter of TM 20-1 and TM 20-2, where applicable, contains Operational Checks. This is where the unit maintainer starts to identify the nature of the problem. As these manuals caution, it is important to perform Operational Checks exactly as presented, or false findings can result. The second important application of the Operational Check is its use after LRU replacement, or repair, to verify that the fault has been corrected. The Operational Check for manpack and vehicular radios found in TM 20-3, Unit Maintenance Handbook, are identical to those provided in TM 20-1. Operational checks for other items of equipment are shown in TM 20-2 only.

TROUBLESHOOTING FLOWCHARTS.

Each chapter of TM 20-1 and TM 20-2, where applicable, contains Troubleshooting Flowcharts. Which flowchart to use is determined by the Operational Check. Use of the troubleshooting flowchart then identifies the specific problem and tells the maintainer to replace, or repair, a specific LRU.

The Unit Maintenance Handbook, TM 20-3, contains abbreviated troubleshooting flowcharts called Troubleshooting Guides. Guides are shorter than flowcharts to permit their use in a logbook sized handbook. Experience has shown that by using these abbreviated troubleshooting guides, a unit maintainer is able to correctly identify system problems. When use of the troubleshooting guides fails to properly identify the problem, or there is a question about the accuracy of the problem identification, the unit maintainer should use TM 20-1 or TM 20-2 with their more extensive troubleshooting flowcharts. The purpose of the handbook is to help the unit maintainer when working inside vehicles in the field, but the procedures contained in the handbook may be supplemented with those in TM 20-1 and TM 20-2.

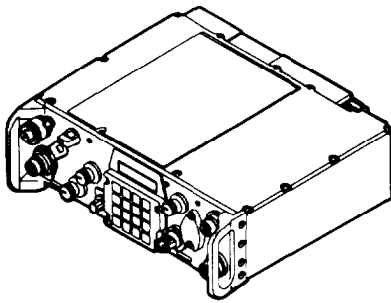
SYSTEM VERSUS COMPONENTS.

The Operational Checks and troubleshooting flowcharts/guides found in TM 20-1, TM 20-2, and TM 20-3 are based upon the requirement to check systems rather than components. For example, a problem with the radio in a vehicle must be checked in the vehicle, not by removing the RT and taking it elsewhere to be checked. Once the vehicular radio system has been checked and a specific LRU identified as faulty, that LRU can be taken elsewhere for further checking. When the radio system being checked includes an AN/VIC-1 (VIC), check first to determine if the fault is in the radio or the VIC. Then troubleshoot the faulty part of the system.

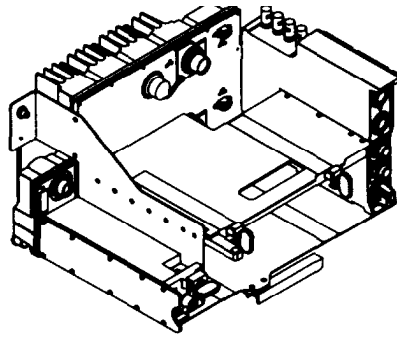
AVOIDING FALSE PULLS.

When properly used, these three TMs offer the unit maintainer the means for accurately identifying nearly all faulty LRUs. The number of problems which can occur in radio systems and the detailed procedures required for accurate identification dictate that manuals must be used even under the most adverse field conditions. Attempts to troubleshoot from memory have proven over and over to result in false pulls, reflecting adversely on the unit maintainer and helping no one. Four sure ways to keep false pulls to an absolute minimum are: (1) start by performing the prescribed Operational Check; (2) use these manuals when troubleshooting; (3) confirm your fault identification by again performing the Operational Check; and (4) use TM 20-1 and TM 20-2 troubleshooting flowcharts to double-check faulty LRUs before evacuating them to direct support (DS) maintenance.

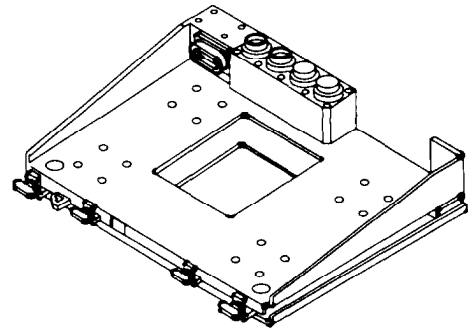
MAIN COMPONENTS OF RT-1523 SERIES RADIO SETS AND INSTALLATION KITS



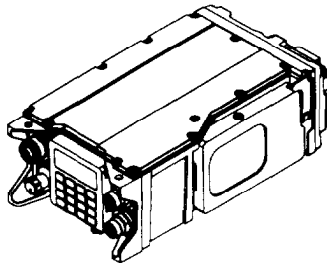
RECEIVER-TRANSMITTER,
RADIO (RT)
RT-1523 SERIES



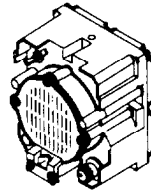
AMPLIFIER-ADAPTER,
VEHICULAR (VAA)
AM-7239 SERIES



MOUNTING BASE,
ELECTRICAL EQUIPMENT (MB)
MT-6352/VRC
MT-6352A/VRC



RECEIVER-TRANSMITTER,
RADIO (RT)
RT-1523E(C)/U



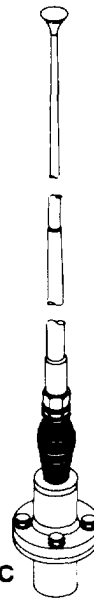
LOUDSPEAKER-
CONTROL UNIT
LS-671/VRC



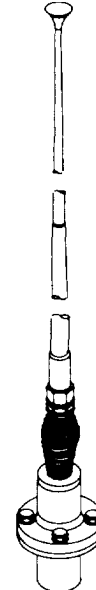
ANTENNA,
MANPACK
AS-3683/PRC



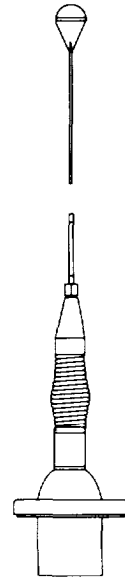
ANTENNA,
MANPACK
AS-4266A/PRC



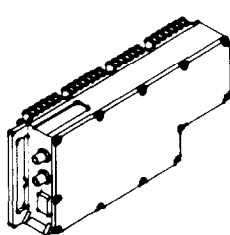
ANTENNA,
VEHICULAR
AS-3900/VRC



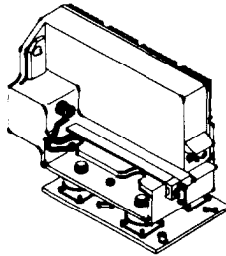
ANTENNA,
VEHICULAR
AS-3900A/VRC



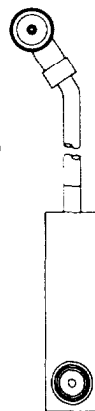
ANTENNA,
VEHICULAR
AS-3916/VRC



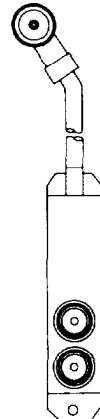
AMPLIFIER, RADIO
FREQUENCY (PA)
AM-7238 SERIES



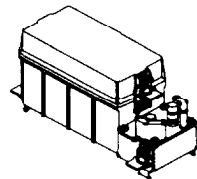
MOUNTING BASE,
ELECTRICAL
EQUIPMENT
(PA MOUNT)
MT-6353/VRC



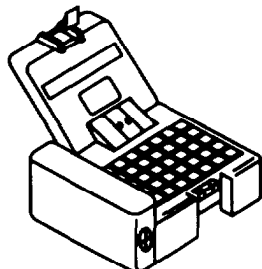
CABLE ASSEMBLY,
SPECIAL PURPOSE,
ELECTRICAL
(VIC INTERFACE CABLE)
CX-13313/VRC



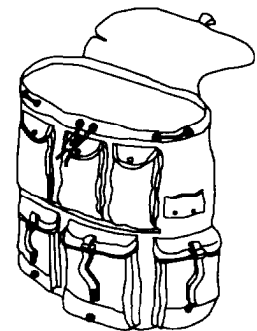
CABLE ASSEMBLY,
SPECIAL PURPOSE,
ELECTRICAL
(SPLITTER CABLE)
CX-13417/VRC



BATTERY BOX
CY-8523A/PRC
CY-8523B/PRC
CY-8523C/PRC



AUTOMATED NET CONTROL
DEVICE (ANCD) AN/CYZ-10



FIELD PACK,
COMBAT NYLON